

WHAT IS CLAIMED IS:

1. A foldable truss member, comprising:

a plurality of adjacently connected side members together forming a peripheral boundary of the truss member, each side member comprising:

an elongated support member having a side surface;

a bridging member fixedly connected to the side surface of the support member at an attachment point of the support member, the bridging member having an extension at an edge of the bridging member opposite the attachment point;

a plurality of hinge members pivotally joining the extension of each side member to the support member of the adjacent side member, each hinge member allowing relative rotation of adjacent side members; and

at least one latching member attached between two adjacent side members, the latching member preventing relative rotation of adjacent side members in a deployed configuration of the truss member.

2. The truss member according to claim 1, wherein each bridging member further comprises a sawtooth-shaped member having a first and second set of oppositely disposed peaks, the first set of peaks attached to the attachment point of the associated support member, and the extensions of each bridging member comprising the second set of peaks.

3. The truss member according to claim 2, wherein the latching member comprises a pair of indentations engagable with the peaks of the bridging members.

4. The truss member according to claim 3, wherein the latching member further comprises a support member extending past the pair of indentations so that the support member blocks over-rotation of the engaged bridging member.

5. The truss member according to claim 1, wherein the latching member is fixedly attached to one of the hinge members.

6. A foldable truss member, comprising:

a plurality of adjacently connected side members together forming a peripheral boundary of the truss member, each side member comprising:

an elongated support member having a side surface;

a bridging member fixedly connected to the side surface of the support member at an attachment point of the support member, the bridging member having an extension at an edge of the bridging member opposite the attachment point;

a plurality of hinge members pivotally joining the extension of each side member to the support member of the adjacent side member, each hinge member allowing relative rotation of adjacent side members, a plurality of edges between adjacent side members defining a plurality of corners of the truss member; and

at least one latching linkage attached between a pair of the opposing corners of the truss member, the latching linkage preventing relative rotation of side members at a deployed configuration of the truss member.

7. The truss member according to claim 6, wherein the latching linkage comprises a first and second portion each rotatably coupled to the opposing corners of the truss member, the latching linkage further comprising a pivot between the first and second portions allowing relative rotation therebetween.

8. The truss member according to claim 6, wherein the latching linkage further comprises:

a pair of pivot bars each with a first and a second end, the first ends of the pivot bars each rotatably attached to the truss member at the opposing corners of the truss member; and

a pivot latching member rotatably attached to the second end of at least one of the pivot bars, the pivot latching member preventing relative rotation between the pivot bars at a deployed configuration of the truss member.

9. The truss member according to claim 8, wherein the pivot latching member is rotatably attached to the second ends of both of the pivot bars.

10. The truss member according to claim 8, wherein the pivot latching member is rotatably attached to the second end of one of the pivot bars and the pivot latching member is fixedly attached to the second end of the other of the pivot bars.

11. The truss member according to claim 8, wherein the pivot latching member comprises:

a body section;

an elongated cavity creating an opening along a side of the body; and

one or more protrusions extending into the cavity, and wherein the second ends of at least one of the pivot bars are pivotally attached within the cavity so that the one or more protrusions engage the second ends of the at least one pivot bar to prevent relative rotation of the pivot bars in a deployed configuration of the truss member.

12. The truss member according to claim 11, wherein the second ends of both of the pivot bars are pivotally attached within the cavity so that the one or more protrusions engage the second ends of both pivot bars to prevent relative rotation of the pivot bars in a deployed configuration of the truss member.

13. The truss member according to claim 11, wherein the second ends of one of the pivot bars is pivotally attached within the cavity so that the one or more protrusions engage the second end of the pivot bar to prevent relative rotation of the pivot bars in a deployed configuration of the truss member, and wherein the second end of the other pivot bar is fixedly attached to the pivot latching member.

14. A foldable truss member, comprising:

a plurality of side member means, each side member means comprising a receiving means located at a lower edge of the side member means, the side member means adjacently arranged so that the lower edges of the adjacently arranged side member means form a closed shape having a plurality of corners;

a plurality of hinging means connected between adjacently arranged side member means, the hinging means allowing relative rotation between adjacently arranged side member means so that the side member means are foldable into a substantially flat assembly; and

a latching means adjacent at least one of the corners of the truss member, the latching means preventing relative rotation of the side member in a deployed configuration of the truss member.

15. The truss member according to claim 14, wherein the latching means are fixedly attached to at least one of the hinging means.

16. The truss member according to claim 14, wherein the latching means are fixedly attached to at least one of the side member means, and wherein the latching means comprise at least one indentation engagable with the adjacent side member means.

17. A foldable truss member, comprising:

a plurality of side member means each comprising a lower edge and two side edges, the side member means adjacently arranged so that the lower edges of the adjacently arranged side member means form a closed shape;

a plurality of hinging means connected between the side edges of the adjacently arranged side member means, the hinging means allowing relative rotation between adjacently arranged side member means so that the side member means are foldable into a substantially flat assembly, the side edges of the side member means defining a plurality of corners of the truss member; and

a linking means connected between an opposing pair of the corners of the truss member, the linking means preventing folding of the truss member in a deployed configuration of the truss member.

18. The truss member according to claim 17, wherein the linking means comprises:

a pair of pivot bars each with a first and a second end, the first ends of the pivot bars each rotatably attached to the truss member at the opposing corners of the truss members; and

a pivot latching means connected to the second ends of the pivot bars, the pivot latching means preventing relative rotation of the pivot bars in the deployed configuration of the truss member.

19. The truss member according to claim 18, wherein the pivot latching means is rotatably attached to the second ends of both of the pivot bars.

20. The truss member according to claim 18, wherein the pivot latching means is rotatably attached to the second end of one of the pivot bars and the pivot latching means is fixedly attached to the second end of the other pivot bar.

21. A method of assembling a truss member, comprising:
adjacently coupling a plurality of side members to form a peripheral boundary for each of the truss members, each of the side members including an elongated edge pivotally attached to the adjacent side member;
relatively rotating the adjacent side members about the elongated edges to put the side members of the truss member in a deployed configuration; and
further relatively rotating the adjacent side members about the elongated edges to engage a latching member connected between the elongated edges of at least two of the adjacent side members, the latching member providing a holding force to prevent further relative rotation of the side members.

22. The method according to claim 21, further comprising:
further relatively rotating the adjacent side members about the elongated edges with a folding force sufficient to overcome the holding force of the latching member; and
further relatively rotating the adjacent side members about the elongated edges to put the truss member in a folded configuration.

23. The method according to claim 22, wherein engaging the latching member between at least two of the adjacent side members further comprises engaging an indentation of the latching member with an extension of one of the side members.

24. A method of assembling a truss member, comprising:
adjacently coupling a plurality of side members to form a peripheral boundary for each of the truss members, each of the side members including an elongated edge pivotally attached to the adjacent side member, the elongated edges of the side members defining a plurality of corners of the truss member;
relatively rotating the adjacent side members about the elongated edges to put the side members of the truss member in a deployed configuration; and
relatively rotating a pair of pivot bars about a first end of each of the pivot bars rotatably attached to opposing corners of the truss member to engage a pivot latching member attached to a second end of each of the pivot bars, the pivot latching member providing a holding force in the deployed configuration of the truss member to prevent further relative rotation of the pivot bars.

25. The method according to claim 24, further comprising:
further relatively rotating the pivot bars about the respective first ends with a folding force sufficient to overcome the holding force of the pivot latching member; and
further relatively rotating the adjacent side members about the elongated edges to put the truss member in a folded configuration.

26. The method according to claim 24, wherein engaging the pivot latching member attached to the second end of each of the pivot bars further comprises engaging the second end of at least one of the pivot bars with a protrusion in a cavity of the pivot latching member.